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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/692,371 | 10/20/2000 | Johannes Krul | 198707US-0X CONT | 1923 |
| 22850 | 7590 | 03/17/2004 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | FUREMAN, JARED | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2876 | |

DATE MAILED: 03/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

6

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|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 09/692,371 | Applicant(s) KRUL ET AL. | |
| | Examiner Jared J. Fureman | Art Unit 2876 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-4,9-17,19 and 22-61 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16,39-43,45-47 and 60 is/are allowed.
- 6) ☒ Claim(s) 2-4,9-15,17,19,22-38,44,48-59 and 61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/4/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Receipt is acknowledged of the IDS and amendment, filed on 12/4/2003, which have been entered in the file. Some of the references listed on the IDS were lined through, since they were either previously cited or no copy was provided. It is noted that the amendment incorrectly indicates claims 5-7 are pending, however, claims 5-7 were cancelled in the amendment filed on 4/30/2003. Thus, claims 2-4, 9-17, 19, and 22-61 are pending.

Claim Objections

1. Claim 44 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 10. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).
2. Applicant is advised that should claim 10 be found allowable, claim 44 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2876

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2-4, 12-15, 19, 30-32, 37, 38, 48-50, 55-56, 59, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri et al (US 5,888,624) in view of Tsuji (JP 4-91475 A) and Brown et al (Logic Gates Made From Polymer Transistors and Their Use in Ring Oscillators, cited by applicant).

Haghiri et al teaches a security paper/document (since the card as taught by Haghiri et al includes security elements, it can be considered a security paper/document) comprising a substrate (card body 3) which is made from paper and at least one integrated circuit (electronic module 1), wherein the integrated circuit is contactlessly readable integrated circuit (an electronic module suitable for noncontacting data exchange) which can be read in an inductive or capacitive manner, wherein the substrate comprises additional security features (see column 9 lines 51-54), wherein an additional security feature is fluorescent material (fluorescent fibers) (see figure 1, column 2 lines 31-56, column 3 lines 51-58, column 4 lines 38-45, and column 9 lines 51-54).

Haghiri et al fails to teach the integrated circuit being a flexible integrated circuit.

Tsuji teaches a flexible integrated circuit (2) formed on a flexible substrate (3) made from an organic material (see figures 1, 2, and the translation of the abstract).

In view of Tsuji's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the substrate as taught by Haghiri et al, the integrated circuit being a flexible integrated circuit, in order to alleviate

restrictions on handling and mounting the integrated circuit (see the translation of the Purpose of Tsuji).

Haghiri et al as modified by Tsuji fails to specifically teach the integrated circuit comprising a semiconductive organic polymer, wherein the organic polymer is selected from conjugated polymers, wherein the organic polymer is poly(thienylenevinylene), an insulating layer on the semiconductive organic polymer.

Brown et al teaches an integrated circuit comprising a semiconductive organic polymer, wherein the organic polymer is selected from conjugated polymers, wherein the organic polymer is poly(thienylenevinylene), an insulating layer on the semiconductive organic polymer (see pages 972 and 974).

In view of Brown et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify, the substrate as taught by Haghiri et al as modified by Tsuji, to include: the integrated circuit comprising a semiconductive organic polymer, wherein the organic polymer is selected from conjugated polymers, wherein the organic polymer is poly(thienylenevinylene), an insulating layer on the semiconductive organic polymer, in order to provide a semiconductor that is less expensive than the conventional silicon chip (see Brown et al).

5. Claims 9-11, 34-36, 44, and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri et al as modified by Tsuji and Brown et al as applied to claim 1 above, and further in view of the admitted prior art.

Haghiri et al as modified by Tsuji and Brown et al fails to specifically teach wherein the integrated circuit comprises a preprogrammed code which is applied before

incorporating the circuit in the substrate, wherein the integrated circuit comprises a code of an intrinsic property of the substrate, which code, after the substrate is produced, is arranged in the integrated circuit.

The admitted prior art teaches that it was well known in the art at the time of the invention to provide an integrated circuit that comprises a preprogrammed code which is applied before incorporating the circuit in the substrate (see the specification page 7 line 31 - page 8 line 15), wherein the integrated circuit comprises a code of an intrinsic property of the substrate, which code, after the substrate is produced, is arranged in the integrated circuit (see the specification page 7 line 31 - page 8 line 15), wherein the code is an encrypted code (see the specification page 7 line 31 - page 8 line 15).

In view of the admitted prior art, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the substrate, as taught by Haghiri et al as modified by Tsuji and Brown et al, to include: the integrated circuit comprises a preprogrammed code which is applied before incorporating the circuit in the substrate, wherein the integrated circuit comprises a code of an intrinsic property of the substrate, which code, after the substrate is produced, is arranged in the integrated circuit, wherein the code is an encrypted code, in order to provide greater security for the substrate, thereby reducing counterfeiting and fraudulent activities.

6. Claims 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri et al as modified by Tsuji and Brown et al as applied to claim 1 above, and further in view of Giustiniani et al (EP 0 753 623 A2, cited by applicant).

Haghiri et al as modified by Tsuji and Brown et al fails to specifically teach, a security document comprising the substrate, the security document being a banknote, a passport, identity card, or a security.

Giustiniani et al teaches a security document comprising a substrate, the security document being a banknote (currency bill), passport, identity card, or a security (a check) (see page 2 lines 3-8, 42-44, and page 3 lines 27-34).

In view of Giustiniani et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the substrate, as taught by Haghiri et al as modified by Tsuji and Brown et al, to include: a security document comprising the substrate, the security document being a banknote, passport, identity card, or a security, in order to provide greater security against counterfeiting for documents that require an anti-forgery system.

7. Claims 17, 26, 33, 51, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri et al as modified by Tsuji and Brown et al, further in view of Bratchley et al (US 6,155,605, previously cited).

The teachings of Haghiri et al as modified by Tsuji and Brown et al have been discussed above. Haghiri et al also teaches providing the integrated circuit with electrical contacts (12) (see figure 1 and column 4 lines 38-45, note that the integrated circuit can be contact or non-contact).

Haghiri et al as modified by Tsuji and Brown et al fails to specifically teach wherein the integrated circuit forms part of an optically active element, wherein the optical active element is a hologram.

Bratchley et al teaches a substrate having an optically active element (a foil or hologram) included with another security feature (another entity) (see column 4 line 36 - column 5 line 26).

In view of Bratchley et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system as taught by Haghiri et al as modified by Tsuji and Brown et al, wherein the integrated circuit forms part of an optically active element, wherein the optical active element is a hologram, in order to provide greater security.

8. Claims 27-29 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haghiri et al as modified by Tsuji and Brown et al in view of Kodukula et al (US 6,118,379).

The teachings of Haghiri et al as modified by Tsuji and Brown et al have been discussed above.

Haghiri et al as modified by Tsuji and Brown et al fails to teach a conductive security thread, wherein the conductive security thread is connected to the integrated circuit; wherein the integrated circuit forms part of the security thread; wherein the security thread has a thickness of 5-60% of the substrate.

Kodukula et al teaches a substrate (120) including a conductive security thread (antenna 118 can be interpreted as a conductive security thread, since the antenna conducts and may be used in a RFID tag security application), wherein the conductive security thread is connected to an integrated circuit (128); wherein the integrated circuit forms part of the security thread (since the integrated circuit is connected to the security

Art Unit: 2876

thread, the integrated circuit forms part of the security thread); wherein the security thread has a thickness of 5-60% of the substrate (as can be seen in figure 2B, the security thread 118 has a thickness in the range of 5-60% of the thickness of the substrate) (see figures 2A, 2B, column 1 lines 20-24, column 3 lines 34-52, column 4 lines 45-61, and column 5 lines 28-33).

In view of Kodukula et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the substrate as taught by Haghiri et al as modified by Tsuji and Brown et al, a conductive security thread, wherein the conductive security thread is connected to the integrated circuit; wherein the integrated circuit forms part of the security thread; wherein the security thread has a thickness of 5-60% of the substrate, in order to allow the substrate to be used in a greater variety of applications, thereby increasing the versatility and usefulness.

Allowable Subject Matter

9. Claims 16, 39-43, 45-47, and 60 have been allowed over the prior art of record.

10. The following is a statement of reasons for allowance and the indication of allowable subject matter: The prior art of record, taken alone or in combination, fails to teach or fairly suggest: a security thread comprising an insulating support bearing a flexible integrated circuit comprising a semiconductive organic polymer provided with electrical contacts for the integrated circuit, in combination with the other claimed limitations as set forth in the claims.

While various prior art of record (for example: Giustiniani EP 0 753 623 A2, Kaule et al US 5,112,672, and Schneider US 4,763,927) teach conductive security threads, the prior art of record does not teach security threads having a flexible integrated circuit comprising a semiconductive organic polymer. As discussed above, Brown et al teaches semiconductive organic polymers useful for low-end data storage and cheap integrated electronic circuits. However, Brown et al only provides motivation for replacing conventional silicon chips with the semiconductive organic polymers. Therefore, without the benefit of applicant's invention, there is no motivation for one of ordinary skill in the art at the time of the invention to combine the teachings of the prior art in a manner so as to create the claimed invention.

Response to Arguments

11. Applicant's arguments filed 12/4/2003 have been fully considered but they are not persuasive.

In response to applicant's argument that Haghiri et al describes an article which has inherent weaknesses with regards to its flexibility and would therefore be unsuitable in the claimed invention; the use of the prior art electronic module in a security document would necessarily present an unacceptable risk, therefore, it makes no sense to combine Haghiri et al with Tsuji or Brown (see pages 12-13, of the amendment filed on 12/4/2003), it is noted that Tsuji is combined with Haghiri et al, thus the teaching of Haghiri et al are being modified with the teachings of Tsuji. Tsuji et al recognizes that it is desirable to provide a flexible semiconductor chip, so as to alleviate restrictions on handling and mounting the semiconductor chip (see the translation of the abstract,

under "purpose". Thus, one of ordinary skill in the art at the time of the invention would be motivated by the teaching of Tsuji et al to replace the semiconductor chip as taught by Haghiri et al with the flexible semiconductor chip as taught by Tsuji, in order to alleviate restrictions on handling the card, and therefore eliminate the problem of the semiconductor chip becoming detached from the card due to bending of the card.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., even sharp creases in the chip made from the semiconductive organic polymer do not impede the functioning of the chip, see page 13 of the amendment filed on 12/4/2003) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's argument that the preambles of claims 14 and 15 include the limitations "security paper" and "security document" (see page 13 of the amendment filed on 12/4/2003), applicant's are reminded that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Furthermore, even considering the recitations of "security paper" and "security document", the teaching of Haghiri et al meet these claimed limitations. The card 3 as

taught by Haghiri et al is made of paper (see column 2 lines 31-56) and include security elements (see column 9 lines 51-54). Thus, the card 3 meets the limitations of "security paper" and "security document" when given their broadest reasonable interpretation.

Applicants also argue that the terms "security paper" and "security document" inherently require the claimed invention to have flexible properties (see pages 13-14 of the amendment filed on 12/4/2003), however, applicants have not shown that all items which could be described as a "security paper" or a "security document" are inherently flexible to the same degree and the same standards. For example, even the card as taught by Haghiri et al is flexible to a certain degree and the ISO 7810 standard allows flexibility to a certain degree (see section 8.1 "Bending stiffness"). Thus, the teachings of Haghiri et al as modified by Tsuji and Brown et al meet the claimed limitations.

In response to applicant's argument that there is no indication that the prior art RFID antenna is a feature that cannot be reproduced by color copying (see page 16 of the amendment filed on 12/4/2003), while it is unknown whether the RFID antenna as taught by Kodukula et al would be visible in a color copy of the tag, such color copy would clearly not function as a RFID tag and antenna. Thus, color copying clearly cannot functionally reproduce the RFID tag and antenna as taught by Kodukula et al.

In conclusion, applicant's arguments are based upon properties and definitions that are clearly not required by the limitations recited in the claimed invention (for example, the definitions of "security paper" and "security document", and the flexibility properties that applicants argue are inherent). Therefore, the teachings of the prior art

of record meet the claimed limitations when given their broadest reasonable interpretation.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schneider (US 2003/0164611 A1) and Goff et al (US 2003/0206107 A1) both teach security documents and/or papers.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared J. Fureman whose telephone number is (571) 272-2391. The examiner can normally be reached on 7:00 am - 4:30 PM M-T, and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 7, 2004

Jared J. Fureman
JARED J. FUREMAN
PRIMARY EXAMINER